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DOCUMENT-IDENTIFIER: US 20020099487 A1

TITLE: Fail-safe system in integrated control of vehicle

Summary of Invention Paragraph (10):

[0009] U.S. Pat. No. 5,957,985 relates to a failure-resilient automobile control system which integrates diverse and separate automobile components and provides fault-tolerance to component failure. The automobile control system includes a master control unit (MCU) electrically coupled via a primary data communications bus to the electronic automobile components. The MCU is master of the bus and manages data flow over the bus among the electronic automobile components. The MCU can be configured with a routing table to route data monitored in one component to one or more other components. The MCU is also capable of performing the same functions as those performed by local controllers at the electronic components. During initialization, driver software for all of the local controllers is downloaded and stored at the MCU. In the event that a local controller fails, the MCU executes the driver software for the failed controller to remotely control the electronic automobile component in place of the failed local controller. Switching logic is installed at each of the electronic components to selectively route data to the primary bus, circumventing the failed controller. The automobile control system has a secondary control unit (SCU) electrically coupled to the MCU via the primary bus. The SCU is a stand-alone computer that supports clients and other devices on a secondary support bus. The SCU is also configured to backup the MCU. During normal operation, the SCU is subordinate to and controlled by the MCU on the primary bus. In the event that the MCU fails, the SCU assumes control of the data communications network and manages the data flow among the electronic automobile components.

Detail Description Paragraph (40):

[0060] The travel control ECU 3 includes a microcomputer 3a and a communication unit (a communication interface) 3b. The microcomputer 3a has a processing speed of 15 MIPS and a storage capacity of 128 KB. The communication unit 3b is connected to the communication lines L. The travel control ECU 3 can perform data communications via the communication unit 3b. The travel control ECU 3 implements the control of the braking device which includes an anti-lock brake unit (an anti-lock brake system, ABS) for preventing the drive wheels of the vehicle from being locked when the vehicle is abruptly braked. The travel control ECU 3 and the engine ECU 1 cooperate to implement inter-vehicle control or automatic cruise control (ACC) for measuring the distance between a preceding vehicle and the present vehicle by a laser radar and controlling the inter-vehicle distance at a constant value, vehicle stabilizing control (VSC) for stabilizing the body of the vehicle when the vehicle travels along a curved road, and traction control (TRC) for preventing the drive wheels of the vehicle from slipping during acceleration. Sensors and switches are associated or connected with the travel control ECU 3. The sensors and switches include a master cylinder pressure sensor for detecting the hydraulic pressure in a master cylinder of the braking device, a steering sensor for detecting the steering angle of the vehicle, and a yaw rate sensor for detecting the yaw rate of the body of the vehicle.